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ABSTRACT

This booklet examines the instructional practice of modeling and describes step-by-step techniques for learning to use modeling to improve or modify teaching. The authors discuss the possible use of audio and videotape equipment and emphasize the importance of constructive feedback and individual practice sessions as essential parts of the modeling process. In addition, the authors show how these techniques might be incorporated into a program of performance-based supervision for use during preservice and inservice teacher training. (JG)

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Performance Based Teacher Supervision Using Modeling

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A SYSTEM AND RATIONALE FOR PERFORMANCE BASED TEACHER SUPERVISION USING MODELING, FEEDBACK AND PRACTICE COMPONENTS

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PREFACE

Improvement of the teaching process has been - and it appears will continue to be - a never-ending search on the part of all of us in the teaching profession.

How do we learn/acquire new, or modify existing, teaching behaviors? One of the techniques is known as observational learning or modeling.

Mary Lou and John Koran offer to the readers of this Bulletin an introduction, some very practical suggestions and step-by-step techniques for learning to improve or modify teaching through the use of modeling.

On behalf of the Florida Educational Research and Development Council, I compliment them on their brevity and ability to help us get some insight into a technique which has potential for being applied in our teacher training activities.

W. F. Breivogel, Ed. D.
Executive Secretary

Winter, 1975

INTRODUCTION

In performance based, or competency based teacher training, clearly defined performances are prescribed for trainees prior to instruction and each trainee provides directly observable evidence of achievement of these performances subsequent to instruction.[1*] Both inservice and preservice teachers may be trained to engage in specific behavior thought to be related to student learning, and the management of this training sequence could appropriately be called performance based teacher supervision.[2] While the teacher in training is attempting to behave in ways appropriate to the type of instruction he or she is engaged in, the supervisor, either through direct observation or video or audiotape recordings is noting the teacher's performance and providing feedback on specific aspects of this performance. Another vital step is teacher practice.

"Supervisor" in this bulletin is used to describe a "master teacher," principal, director of curriculum or any other individual in the school responsible for improving

*See numbered References at the end of this bulletin

instruction through staff development. The skills which are the objectives of training are those things a teacher can do or say to produce or enhance learning. For a complete list of teacher behaviors thought to be related with student learning, supervisors can acquire the Florida Catalog of Teacher Competencies produced by Dr. Norman Dodl, Florida State University, Tallahassee, Florida. Note the example of a written model, Figure I, Analytic Questioning and the description of monitoring behavior and others in the text. These behaviors are all found in the Catalog of Teacher Competencies. Using these competencies as a guide, school personnel can either provide each other with feedback regarding how well they approximate the written description or use live or videotape models to help each other master particular behaviors. The various ways teachers, principals or supervisors can use these behaviors are described in this bulletin.

Modeling

A major problem in all types of instruction is to select or construct appropriate methods to assure that the learner will be exposed to, and acquire, the specific skills that are the objectives of instruction. One promising and practical method for training teachers is called modeling. This approach is based on considerable theory and research in both psychology and education and basically involves showing a trainee either a live, videotape, audiotape or written model of a behavior to be acquired. The trainee observes this behavior and soon after observation of it, attempts to emulate it under conditions similar to those observed. If, for instance, the behavior is monitoring behavior, or training a teacher to circulate around a classroom or laboratory in order to assist students, the supervisor could select any number of ways to introduce this behavior. For one, a teacher on the faculty who already displays all the relevant components of this behavior

could be selected as a "model," and other teachers on the faculty provided with released time to observe the behavior. Essential components here are that the "model" display all of the relevant dimensions of the behavior; circulating around the room, asking questions, prompting and cuing students, and providing feedback to them; and that the observing teacher be introduced to these behaviors, pay particular attention to their attributes, and later attempt to emulate them. An observing supervisor would provide feedback as soon as possible to the teacher in training regarding the nature of the performance. Later the teacher could continue to practice various dimensions of the behavior based on feedback received from the observing supervisor. Thus this approach employs a "live model" as part of the supervisory activity.

Another, similar approach would be to capture teacher monitoring behavior using videotape. Later a supervisor could sit down with the videotape model and the teacher to be trained in the skill, and point out the behavior to be acquired. Teachers observing the videotape model would then attempt to use this behavior in their classes and receive feedback on their performance from their supervisor. The advantages of a videotape model over a live model are that the video tape model can be easily transported, can be viewed at any time, can be started, stopped, and discussed at will, and does not require providing released time, during school hours for inservice or preservice training.

When a teaching behavior to be acquired is purely verbal, as in asking probing questions, or, questions which require a student to think and respond beyond a initial response, the supervisor may wish to use an audiotape or perhaps a written model during teacher training. In either case, the same procedure is used as was previously described only with audiotape or written training materials. Again each of these models are easily prepared and used and can be transported and employed with minimal logistical constraints.

Feedback

If behavior is defined as what a teacher does or says, and modeling is used as a means to stimulate teachers to do or say a range of things which bring about learning in their students, then feedback may

be considered a procedure employed by the supervisor to help the teacher to behave in ways that approximate the modeled or desired behavior. It is comprised of information regarding the nature of the trainee's performance and ways that it can be improved. Of course, it is also positive reinforcement if the teacher performs the desired behaviors well. In performance based inservice or preservice programs, feedback is tied to particular observable events. If, for instance a supervisor is training teachers to ask analytic questions in (Figure 1) about written materials which their students read[3] his feedback, after their initial attempt to ask questions in each of the categories of this behavior, would focus on the extent to which the teacher was successful in getting students to think and respond in each of these categories. Figure 1 is an example of a "written model" or protocol which could be used to introduce this verbal behavior to teachers in training. Note that asking analytic questions involves asking students questions which require responses identifying hypotheses, definitions, assumptions, conclusions and distinguishing fact from opinion or value judgment. Thus, this is a complex behavior with five dimensions. A supervisor would provide feedback to a teacher trying to master this behavior that specifically dealt with each catagory of the behavior and how well the teacher mastered it. For instance, he might say "You did an excellent job of getting students to identify important definitions. Let's pick out some examples of how you did it. (Roll the video or audiotape.)" "Next time you practice this skill try to focus your attention on having students work on distinguishing fact from opinion or value judgments." Part of this feedback is positive reinforcement for mastery of particular aspects of the skill and part is focusing attention on additional dimensions of the skill to be practiced and acquired. Supervisors who work in this way can keep a record of what they observe (Figure II) and over time can produce concrete evidence that a teacher has acquired and maintained a given skill. Although the frequency of teacher questions in each category varies in Figure II. the category or categories that need work are those where the frequency is very low or absent. Here, instead of using the audiotape or videotape as a model, the supervisor is using it to gather data on a teacher's behavior and later to play this back for the supervisory session. An important point to remember about feedback is that it must be provided by a supervisor and focus on performances that are

Continued to page 8

Figure I

ASKING ANALYTIC QUESTIONS
ABOUT COMMUNICATIONS

A. Hypotheses

A hypothesis states a relation of dependency among variables. It predicts that a change in one variable will be accompanied by or will produce changes in another variable; thus the relationship may be stated as cause and effect or as accompaniment.

Here are some examples of hypotheses: The characteristics of a college a student attends will be related to the scores he obtains on the GRE. The first variable is "college characteristics;" the second "examination scores."

Attitude toward school will be related positively to the amount of biology retained. Attitude toward school is one variable (since not all students have the same attitude), amount of biology retained is another variable. The hypothesis predicts that postive attitudes will be associated with greater retention.

Hypotheses are frequently (but not always) stated in the form: If A, then B: If positive attitude toward school, then greater retention of subject matter.

Includes: Any interrogative sentences or statements that ask what relationship exists between two or more variables.

Examples:

1. What is the author's hypothesis?
2. What does he think is the cause of B?
3. What does he think A causes?
4. What is thought here to be the relationship between A and B?
5. How are A and B connected?
6. Is X the hypothesis?
7. Why does he think A happens?
8. What arguments (explanation) does he give

for B?
9. How does he account for B?

B. Definitions

The word definition comes from the Latin de which means, "concerning" and "finis," boundary or limits. A definition is therefore literally a statement concerning the limits or boundaries of the meaning of a word. Definitions thus have two main tasks to perform: to convey the essential meaning which is to be the common ground of understanding, and to mark out its limits with sufficient precision for the purposes in view.

Includes: Questions requiring students to distinguish the methods and standards used for defining a word in terms of the written material they are analyzing (as distinguished from their own opinion or common sense notion), similarities, differences, definitions by example.

Examples:

1. What is meant here by poverty?
2. A proposed civil rights bill would apply to business engaging in a "substantial" amount of interstate commerce. How is substantial defined here?
3. What is meant here by patriotism?
4. How do we know what a hippie is from reading this?
5. How does he define objective?
6. Does he define hippie?
7. What distinctions does he make between militaristic and pacifistic patriotism?
8. What does he say is the difference between prejudice and discrimination?
9. Who are the hippies? (who here referring to a collective)
10. How does the author define poverty with respect to income level?

C. Assumptions

Includes questions requiring students to identify assumptions being made which can only be inferred from an analysis of a series of statements.

Includes: Questions asking for the identification of an element regarded as that which is assumed, inferred, implied, presupposed, taken for granted, underlying, behind, underneath, etc.

Examples:

1. What assumptions are being made in this argument?
2. What is he inferring about the race riots?
3. Is he implying X?
4. What inferences are being made here?
5. What is being taken for granted (presupposed) here?
6. What must be assumed to underlie that?
7. What is behind (underneath) that argument?

D. Distinction of Fact from Opinion or Value Judgment

These questions require students to detect the nature and function of a particular statement in a communication.

Includes: Questions requiring students to distinguish factual evidence in an argument from opinion or value judgment. (Value judgments refer to the good-bad; approve-disapprove, for-against dimension.)

Examples:

1. What facts are being presented here?
2. What evidence is given in support of the hypothesis?
3. How does the author feel about X?
4. What does he think about X?
5. What is his idea on this?
6. What is his opinion here?
7. Is X a fact/opinion/value judgment?
8. What does he cite as evidence?
9. What does he use to defend/back up this hypothesis?
10. What inforamtion was that based on?

E. Conclusions

Questions requiring students to distinguish a proposed conclusion arrived at from supporting statements.

Includes: Conclusions, answer, solution, summary point, resolution, final decision arrived at, suggestion made to deal with, alternative solutions to a problem, ways proposed to deal with a problem, suggestions to deal with a problem, etc.

Examples:

1. What conclusion does he come to?
2. What answer does he arrive at about what the hippies should do?
3. Is X the conclusion? (Is that what he is saying? Does he say that?)
4. When he says X, what logical conclusion is he arriving at?
5. How does he answer the original question?
6. How does he propose to deal with that problem?
7. What alternatives to that solution does he offer?

Figure II

CHECKLIST
ANALYTIC QUESTIONING

Category	Frequency
Hypotheses	/////
Definitions	///// /////
Assumptions	////
Fact, opinion, value judgments	
Conclusion	/

Continued from page 3

known to both the supervisor and teacher trainee. Self-feedback, a common practice, has not been shown to have utility unless the trainee is provided with a written protocol or other type of specific device to insure that he or she knows what behaviors to focus on, and also what alternative example of the behaviors exist to those observed.

Practice

A critical factor in learning any teaching skill is practice. Once a behavior has been presented to the trainee and feedback provided on the trainee's initial attempts to demonstrate the behavior, ample time should be scheduled for both supervised and unsupervised practice. Many teachers in training would prefer to work privately on a skill before having the supervisor observe. Others prefer to try the behavior and be observed immediately. Latitude in the training schedule should be provided for the preferences of these trainees as well as for those who prefer more concentrated supervision.

Practice conditions may vary from the regular classroom to a "microteaching" situation in which the teacher teaches a mini lesson to a small group of students (3-6), under controlled conditions, outside of the regular classroom context, for a short period of time. Properly planned mini lessons permit the teacher in training to focus on the specific skills or combinations of skills to be acquired.

COMPONENTS OF A TRAINING AND SUPERVISION MODEL

Acquisition

The content of instruction is composed of facts, concepts and processes. Hence, what a teacher does or says in class should focus on positively influencing the students acquisition of material in each of these categories. At the same time, there is undoubtedly an entire class of teacher behaviors such as proximity to students, joking with them, touching them, etc., which is frequently used and assumed to reach affective objectives. Depending on the school situation and the type of students each teacher is working with, the supervisor's objective should be to use modeling,

feedback, and practice along with other strategies he may desire, to introduce these behaviors to teachers and influence them in such a way that they will stimulate optimal student growth.

To achieve the above, training models and micro-teaching or in-class practice sessions should focus on teaching one type of content, such as a particular concept or a process. The teacher and the supervisor should jointly plan a lesson which incorporates a number of behaviors which enhance learning the concept. Later as the teacher tries to teach the lesson the supervisor can videotape or audiotape the performance and together the teacher and supervisor can assess the teacher's performance. Short quizzes at the end of the teaching session can provide both teacher and supervisor with information regarding teacher effectiveness in terms of student learning. If this supervisory approach is carried out systematically, the role of the supervisor becomes one of helping in the planning stages, introducing behaviors to be acquired in the context of school subject matter, and providing feedback on both subject matter structure and sequence as well as teacher behavior.

Suppose the classification concept of "mammal" is selected as a training concept. In order for a student to learn this concept, class experiences should be provided during which the students recognize that mammals have hair, mammary glands, are warm blooded vertebrates and nurse their young. In addition a wide variety of mammals should be introduced so that students can recognize these similar characteristics on different animals. Next, other vertebrates such as reptiles, amphibians, birds, and fish should be introduced so that the student can distinguish the differences between each of these and mammals. Teacher behaviors such as questioning, monitoring, reinforcing, and eliciting observation and classification responses should be planned as part of the lesson. A short quiz can also be designed to be administered at the end of the lesson to provide data about teacher effectiveness. When the lesson is taught it can be either videotaped or audiotaped and later used as the basis for supervisor feedback. After sufficient feedback and practice, it would be expected that the trainee had acquired the skill of planning for, and teaching a concept and using specific teacher behaviors that are thought to facilitate concept learning to a level acceptable to both the teacher and the supervisor.

Performance

Once skills such as those described previously have been acquired, the supervisor should arrange for teacher performance to occur under a variety of classroom conditions. For example, reinforcement has a frequency dimension which the supervisor can record providing information about whether the behavior is occurring at an acceptably high or unacceptably low frequency. At the same time reinforcement of students can occur in different forms; verbal approval and praise, non-verbal reinforcement such as nodding, smiling, etc. Once acquired the skill can be refined by raising frequency and variety of occurrences. The supervisor can use video and/or audio equipment to sample trainee performance and provide continuous feedback to the teacher in training about the progress being made. Records of this progress can be retained in a file and be used as evidence of both teacher progress and supervisor effectiveness.

Retention

One problem concerning performance based supervision is that as new behaviors are being introduced they frequently replace already acquired behaviors, or the conditions necessary for acquiring and performing them are not the same as those for previously acquired behaviors. For this reason, it is necessary for a supervisor to constantly recall and reinforce the use of previously acquired behaviors and to suggest ways to combine them with new behaviors. Teachers in training should be sensitized to the cumulative nature of training skills and times should be set aside where they will practice combining old and new skills together in an integrated teaching performance. Again, the supervisor and teacher can decide what combination of skills will be tried. A lesson taught and recorded using these skills; and supervisory feedback subsequently provided regarding the extent to which the trainee's attempts at using the skill approached some pre-established standard is essential.

Transfer

Suppose analytic questions were used in a senior English class to analyze some type of written communication. This initial use could be taped and feedback provided by the supervisor about its approximation to desired levels of performance. Later the teacher could practice the skill under similar conditions until each sub-behavior of this skill was mastered. Once acquired, this same skill could then be used in the teacher's other courses, with attempts to elicit student analytic responses from written communications focused on areas of the discipline other than the specific written communication which was used for training purposes. When this is accomplished, the trainee would be generalizing or transferring this skill to a different context and demonstrating its use under different conditions.

Similarly, a science teacher who acquires the skill of analytic questioning, using reinforcement and monitoring in the context of a single concept lesson, can generalize these skills to a wide range of other lessons. They could be used when content or process based lessons were being taught and also in another area of science such as biology, chemistry, physics, general science, etc. Under both of these conditions the supervisor would attempt to sample the behavior using video or audio equipment and provide specific feedback about the effectiveness of the transfer of the skill to other contexts.

Figure III below shows the basic training model that has been employed in this discussion.

Figure III

TRAINING TASKS

Acquisition → performance → practice → transfer
(retention) (generalizability)

USING TEACHER CENTERS FOR TRAINING AND SUPERVISION

Under optimal conditions a teacher center represents the joint efforts of a college of education faculty and the staff of a group of school districts to collaborate in the preservice and inservice training of teachers. The schools and their students represent the laboratories within which microteaching and "macroteaching" take place. School faculties and their students also provide information regarding which teaching skills and materials require training efforts. Finally, master teachers can be trained and recruited from the schools to act as "models" for training and to supervise training.

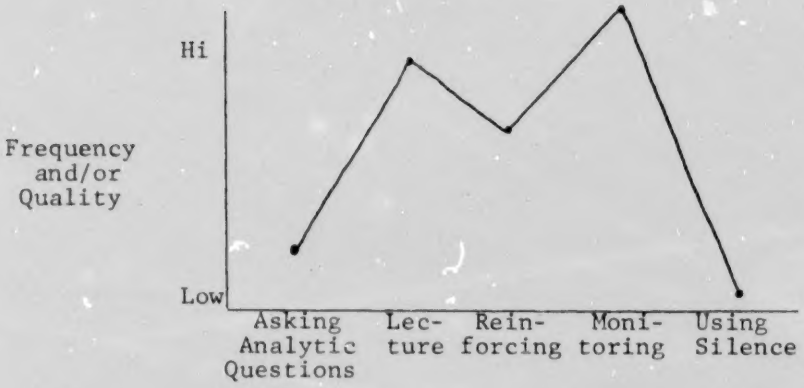
The university professor's role in the teacher center would include: 1) selection and training of model teachers; 2) development or collection of empirically supported training methods; 3) serving as a resource for research on teacher behavior, student learning, and corresponding materials selection; and 4) management of the training program within one or more disciplines.

Inservice training

Experienced teachers are usually characterized by being able to identify the range of behaviors a teacher can use under most classroom conditions and having command over some of these. Usually an inservice teacher's performance profile will show mastery of some teaching skills and an absence of others in patterns which are generally individual and unpredictable (Figure IV). For these trainees, diagnosis of existing teaching skills is an essential first step. This can be accomplished by randomly sampling the teachers activities on audio or videotape and interviewing the teacher while the supervisor and teacher view a videotape or listen to a tape of her performance. Once a performance profile is established the teacher, school supervisor and the supervising professor can join forces to design a training program for that teacher based on the analysis of that individual profile. The procedures that would be used have been outlined previously.

Figure IV

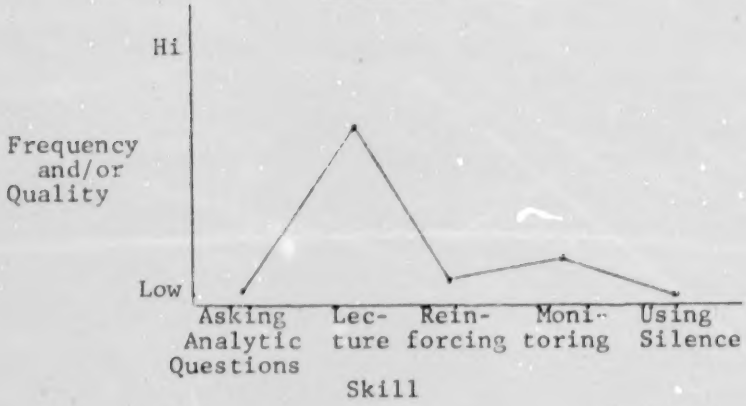
INSERVICE TEACHER
PERFORMANCE PROFILE



Preservice teacher

Preservice teachers can be characterized as having a generally consistent uniformly small response repertoire. Figure V below shows what an initial performance profile might look like for a beginning teacher. Initial diagnosis of entering behavior usually shows behaviors such as asking analytic questions, reinforcing, monitoring and using silence to mention a few, in low frequency or low quality. During an initial lesson preservice teachers usually lecture in high frequency, possibly imitating their former college professors. Frequently the content of the lecture is not organized well and emphasizes factual knowledge. A profile such as Figure V is not uncommon and merely confirms that training is warranted. The training strategies previously described would be totally appropriate here. In addition, since most of the target behaviors need to be acquired by each trainee

Figure V



a self-paced procedure can be established after diagnosis similar to that shown in Figure VI (Koran, J. J. Jr., Baker, S. D., 1974). Here, each training task or behavior is presented and an entering measure is made of the trainees performance (diagnosis). Next the trainee practices the behavior, receiving supervision after each practice until he/she reaches a suitable level of performance. While some trainees will master a behavior immediately after seeing a model of it, others will take substantial practice and supervision. In order to accomodate for these individual differences each trainee should be able to move on to the next skill to be acquired as soon as he has mastered the last one.

Acceptable performance

The behavior we teach a teacher to engage in should be related to student performance. An ideal relationship would look like Figure VII. As the teacher increases in the frequency and quality of a particular behavior the students performance relative to that behavior increases accordingly. However, recent

Figure VI

INDIVIDUALIZING MECHANISMS IN PERFORMANCE BASED SUPERVISION

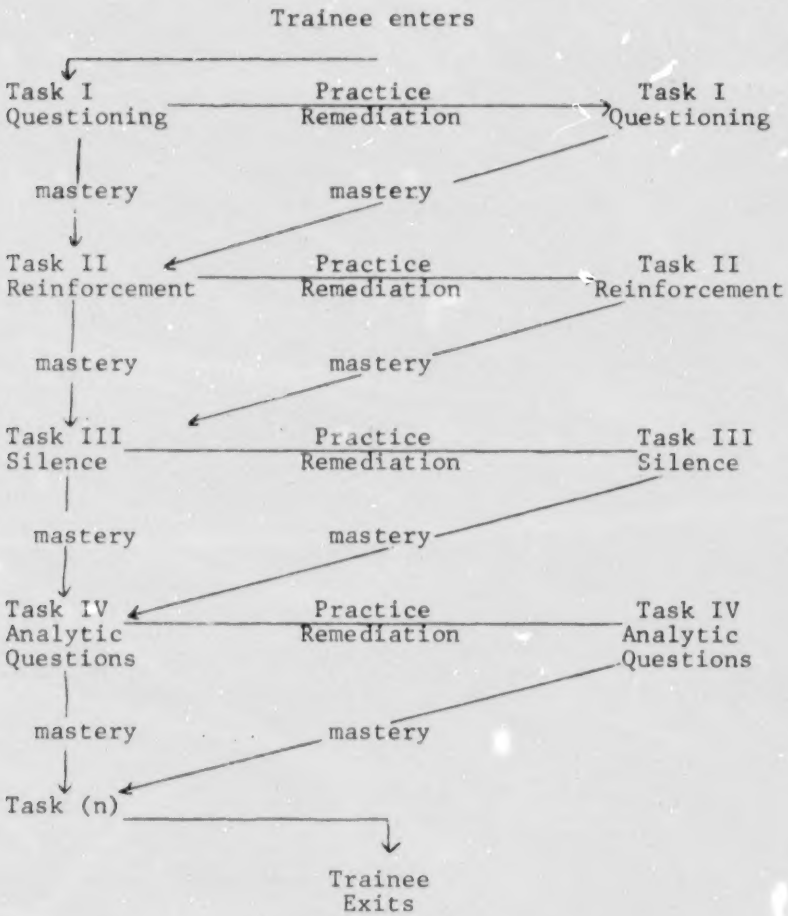
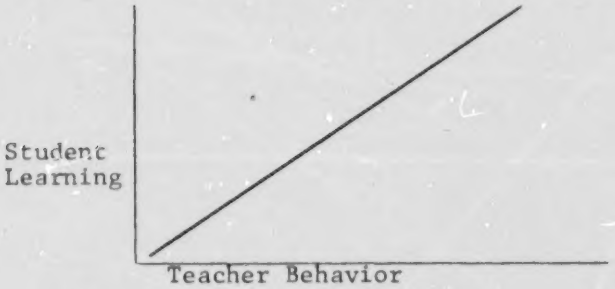


Figure VII

IDEAL RELATIONSHIP OF TEACHER BEHAVIOR TO STUDENT LEARNING



research (Koran, J. J. Jr. and Koran, M. L., 1974) has shown that with the behavior called analytic questioning, there comes a time where an increase in the frequency, variety, or quality of teacher questions does not increase student learning. If we knew this for all relevant teacher behaviors, this point of diminishing return could become "acceptable" or "criterion performance" for the teacher. Unfortunately, we do not have this information for many teaching behaviors; much more research is necessary before this is known. In the absence of this research and data, acceptable levels of teacher performance must to some extent be arbitrarily set. One method the authors have used is to hold the content of a training lesson constant and have a number of trainees teach the lesson using a behavior such as reinforcing. The range of frequency and quality of these performances can serve as the basis for establishing an acceptable level of performance for each trainee -- one that represents mastery.

Conclusion

Teacher behavior has been defined in this research bulletin as what the teacher does and says. We have assumed that we can identify some things we would like pre- and inservice teachers to do and say which appear to be related to student learning. Supervision in this setting is an attempt to arrange conditions so that teacher behavior will be influenced in a positive way. At a time when parents complain that their children appear to be learning little in school, it is imperative that educators on all levels can demonstrate that they have mastered those behaviors which appear to be related to student learning. In this chain of events, as teacher mastery increases one would hope that student mastery on all levels and in all subjects would increase.

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